`APPROVED`

ARCH7039: Advanced 3D Modelling

Module Details

Module Code:	ARCH7039
Title:	Advanced 3D Modelling `APPROVED`
Long Title:	Advanced 3D Modelling
NFQ Level:	Intermediate
Valid From:	Semester 1 - 2019/20 (September 2019)

Duration:	1 Semester

Credits:	5

Field of Study:	5810 - Architecture & Urban Environment

Module Delivered in:	**2 programme(s)**

Module Description:	This module increases the student's ability to use building modelling software as a design and production information tool to develop parametric models necessary for the creation of a virtual building database. The student explores the challenges of coordinating drawing information, collaborating and integrating information with both the design team and the construction team. Basic commands of Photoshop software as a design tool for presentations, exploring graphic design, image manipulation and layout skills.

Learning Outcomes

On successful completion of this module the learner will be able to:

#	Learning Outcome Description
LO1	Use the digital model to extract and elaborate construction information for project delivery.
LO2	Produce professional standard construction drawings in 2D and 3D representations.
LO3	Create photo realistic images of virtual models using 3D architecture computer software.
LO4	Produce production information to a professional standard for project specific legends and scheduling.
LO5	Apply the commands of digital manipulation and enhancing techniques as a design tool for presentations.

Dependencies

Module Recommendations

Incompatible Modules

No incompatible modules listed

Co-requisite Modules

No Co-requisite modules listed

Requirements

No requirements listed

Indicative Content

3D Computer Modelling

Introduction to project review software as part of 3D computer modeling to improve Building Information Modeling for analyzing, extracting and coordinating drawings data with the design team. Create 3D model and production information drawings to industry approved standards PAS-1192 BIM. Setup keynotes for detailing specific to marked tagging systems for detail drawings. Construct correct levels, inputting information and properties to generate stairs in 3D computer model. Create new title-blocks for drawing sheets. Set up filters 'no override in view' for setup of surface materials. Utilize the floor types command tool to duplicate floor types for the creation of site elements and finishes for site topography modelling. Create custom curtain walling panel families using model hatch command tool for creation of cladding and curtain walling for 3D computer model elevations. Apply colour-fill legends input information into rooms for scheduling drawings. Apply filtering command for reflective ceiling plans and wall finishes.

Photoshop Presentation

Understanding of the fundamental commands in Adobe Photoshop. Using toolbars. Understanding the difference between DPI and PPI, CMYK and RGB. Understanding the difference between web based resolution (70-90 PPI) and print based resolution (300 PPI). Basic set-up of screen in window options; adjustments, layers, paragraph, options and tools. Use of layers and groups to manage information on canvas. Using the lock, unlocking of layers and group commands. Develop an appreciation for short cut commands e.g. CTRL C & V (Copy & Paste), CTRL R (Rulers), CTRL 0 (Zoom Extents), CTRL D (End Command), CTRL H (Hide/Unhide). Photoshop commands – move, marque tool, polygonal lasso tool, magic wand tool, crop, eraser (blend), shapes, pan, line. Text – understanding paragraph and character styles, sizing and stylistics. Using levels and curves to improve images. Colour management to manipulate images– paint bucket, gradient, opacity and fill. Fundamental lighting acknowledgement using opacity and colour gradient to represent daylight and artificial lighting to simulate photo realistic images. Photomontage and photo matching, skewing and adjusting textures to realistically photo montage a new building in an existing scene. Adding entourage like people to represent scale and movement through spaces. Photoshop menus – transform options, image adjustments options and basic filter options. Saving PSD file types and exporting flattened images to JPEG and PNG file formats. Overall production of architectural design presentation board layouts to industry standard. Saving Photoshop files in PDF formats for efficient email and printing.

Module Content & Assessment

Assessment Breakdown	%
Coursework	100.00%

Assessments

Coursework			
Assessment Type	Project	**% of Total Mark**	25
Timing	Week 6	**Learning Outcomes**	1,2,3,4
Assessment Description Processing of construction production information, integrating project with technical design studio.			
Assessment Type	Project	**% of Total Mark**	25
Timing	Week 9	**Learning Outcomes**	1,3,4
Assessment Description Extracting data and creating filters from 3D model to produce scheduling information. Integrating project with technical design studio.			
Assessment Type	Project	**% of Total Mark**	25
Timing	Week 13	**Learning Outcomes**	1,2,3
Assessment Description Curtain walling drawings & modelling integrating project with technical design studio			
Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	25
Timing	Every Second Week	**Learning Outcomes**	5
Assessment Description Photoshop: Exercises exploring basic image manipulation.			

No End of Module Formal Examination

Reassessment Requirement

Coursework Only
This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

Module Workload

Workload: Full Time

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Delivery of module content	Every Week	1.00	1
Lab	Contact	Application & assignments: 2D & 3D drawing and Photoshop	Every Week	2.00	2
Independent & Directed Learning (Non-contact)	Non Contact	Completion of studio work	Every Week	4.00	4
				Total Hours	7.00
				Total Weekly Learner Workload	7.00
				Total Weekly Contact Hours	3.00

Workload: Part Time

Workload Type	Contact Type	Workload Description	Frequency	Average Weekly Learner Workload	Hours
Lecture	Contact	Delivery of module content	Every Week	1.00	1
Lab	Contact	Application & assignments: 2D & 3D drawing and Photoshop	Every Week	2.00	2
Independent & Directed Learning (Non-contact)	Non Contact	Completion of studio work	Every Week	4.00	4
				Total Hours	7.00
				Total Weekly Learner Workload	7.00
				Total Weekly Contact Hours	3.00

Module Resources

Recommended Book Resources

Peter Bauer. (2018), Adobe Photoshop CC For Dummies, 2nd Ed. John Wiley & Sons, New Jersey, [ISBN: 978111941811].

Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston. (2011), BIM Handbook, 2nd Ed. John Wiley & Sons, Inc., New Jersey, [ISBN: 978-047054137].

Supplementary Book Resources

Robert Shufflebotham. (2014), Photoshop CC in easy steps, In Easy Steps Limited, [ISBN: 9781840786309].

This module does not have any article/paper resources

Other Resources

Website, On line photoshop tutorials, lynda.com,
https://www.lynda.com/search?q=photoshop
Website, Photoshop user guide, Adobe,
https://helpx.adobe.com/ie/photoshop/use r-guide.html

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_CARCT_8	Bachelor of Science (Honours) in Architectural Technology	-1	Mandatory
CR_TARCH_7	Bachelor of Science in Architectural Technology	-1	Mandatory